Dausman Ditch Source Identification
Water Quality Study

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SURVEYS SECTION
ASSESSMENT BRANCH
OFFICE OF WATER QUALITY
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
IDEM 032/02/071/2003

Dausman Ditch Source Identification Water Quality Study

By

Timothy Beckman, Environmental Manager

Surveys Section
Assessment Branch
Office of Water Quality
Indiana Department of Environmental Management
IDEM 032/02/071/2003
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Citation:
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Abstract

Dausman Ditch is situated in the Kankakee River Basin and drains predominately agricultural land in Kosciusko and Marshall Counties. Sampling results of Dausman Ditch revealed a relatively high number of DELT's (Deformaties, Erosions, Lesions, and Tumors) on the fish collected during the 1999 Watershed monitoring program, although the fish community was not considered to be degraded. No deleterious concentration of any water quality parameter was observed during the 1999 sampling, but poor stream habitat was noted. A follow-up Source ID study was conducted on September 27, 2000 to determine the possible source(s) of the relatively high number of DELT's on the fish. This Source Identification study revealed good water quality in Dausman Ditch and found no source(s) of pollutants which might have caused the DELT's in 1999.

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Introduction

Dausman Ditch is located in the Kankakee River Basin and flows in a westerly direction from northwest Kosciusko County to its confluence with the Yellow River in Marshall County (Figure 1). Dausman Ditch has a total drainage area of 71 square miles (Hoggatt 1975) and an approximate stream gradient of 2.4 feet per mile. Dausman Ditch drains a highly agricultural area with land use dominated by row crops with some scattered small confined feeding operations and pastureland. Dausman Ditch was observed as being highly channelized with steep sloping grass banks and a sandy substrate. This source identification study was initiated due to a high percentage, 4.8% (Simon 1997), of fish specimens with anatomical anomalies referred to as DELT's (Deformities, Erosions, Lesions and Tumors) at Dausman Ditch probabilistic site UMK050-007. The site was sampled in 1999 as part of the Watershed monitoring program for the Kankakee River Basin in support of the *Surface Water Quality Monitoring Strategy 1996-2000* (IDEM 1998). Water was sampled at this site in 1999 on three separate occasions for 26 parameters, but no elevated levels of pollutants were found; however, this site and several others in the watershed had uncommonly high percentage of DELT anomalies. The habitat of the ditch scored poorly (42 out of 100) on the Qualitative Habitat Evaluation Index (QHEI) (IDEM 1992) due to a limited substrate diversity comprised primarily of sand, moderate siltation and embeddedness, recent dredging, and no riffle/run/pool complexes (100% run). In 2000, a source identification study was initiated to investigate if chemical pollutants were present at concentrations violating water quality standards thus producing a stressful environment that can cause a higher than normal percentage of DELT anomalies in the fish community population.

Methods and Materials

Water quality sampling of Dausman Ditch was conducted on September 27, 2000, and was limited to that reach of Dausman Ditch from State Road 19 to the Kosciusko/Marshall county line. Four Dausman Ditch stream samples and the final effluent of Mikel Mobile Estates semi-public wastewater treatment plant, NPDES Permit No. IN0036412 which discharges via the Jacob Miller Field Tile, were collected as two part composites and analyzed for general chemistry and nutrient parameters. Field data were recorded at each sample site when each aliquot was collected. All samples were collected in accordance with the *Surveys Section Field Procedure Manual* (IDEM 2002b). The Mikel Mobile Estates treatment plant is a 0.01 MGD, Class I, extended aeration wastewater treatment plant with a terminal lagoon. This treatment plant discharges to a field tile that then discharges to Dausman Ditch just upstream of the 1999 sample site UMK050-0007. This effluent, combined with the field tile flow, was sampled in order to determine its potential impact on Dausman Ditch. See Figure 1 for study area and Table 1 for the sampling site location descriptions.

The actual location of the Mikel Mobile Estates treatment plant is approximately one mile south of Dausman Ditch. This plant was visually inspected at the time of sampling and appeared to be

in good operating condition. Because of this, a sample was collected directly from the end of the field tile in order to document if any other sources of contaminants were entering the tile.

Figure 1 Map of Dausman Ditch Study Area

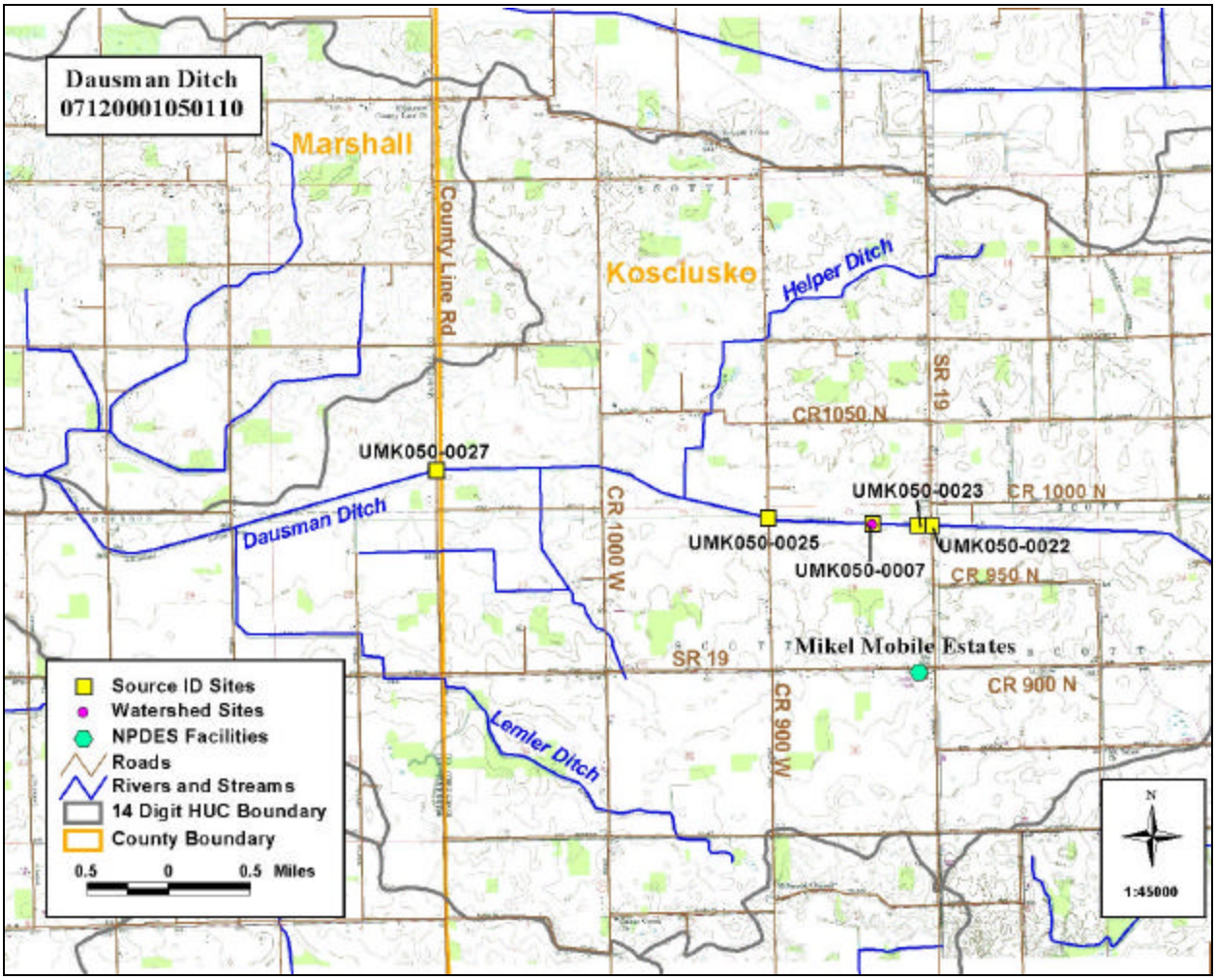

Table 1 Sampling Site Location Descriptions

Site ID	Stream	Location	Latitude/Longitude
UMK050-0022	Dausman Ditch	SR 19	41? 22' 26" /86? 00' 03"
UMK050-0023	Mikel MHP Effluent/Field Tile	Outfall at Dausman Ditch	41? 22' 26"/ 86? 00' 08"
UMK050-0007	Dausman Ditch	Downstream of UMK050-0023	41? 22' 27"/86? 00' 27"
UMK050-0025	Dausman Ditch	CR 900 W	41? 22' 29"/86? 01' 11"
UMK050-0027	Dausman Ditch	County Line Road	41? 22' 45"/86? 03' 31"

Physical stream observations as well as total discharge rates were recorded at all sample locations. All field data and laboratory parameters collected for this study are presented in Tables 2 and 3.

Table 2 Field Parameters

Parameter	Method	Accuracy
Dissolved Oxygen	SM 4500-OG	+/- 0.2 mg/L
Specific Conductance	SM 2510	+/- 1% of range
Temperature	SM 2550	+/- 0.15° Celsius
pH	SM 4500-H	+/- 0.2 SU

Table 3 Chemical Parameters for Laboratory Analyses

Anions/Physical			Nutrients/Organic		
Parameter	**MTD**	**MRL[1]**	**Parameter**	**MTD**	**MRL**
Alkalinity	310.1	10 mg/L	TKN	351.2	0.10 mg/L
Total Solids	160.3	7.0 mg/L	Ammonia-N	350.1	0.01 mg/L
Suspended Solids	160.2	4.0 mg/L	Nitrate+Nitrite-N	353.2	0.01 mg/L
Dissolved Solids	160.1	10 mg/L	Total Phosphorus	356.2	0.03 mg/L
Sulfate	375.2	5.0 mg/L	TOC	415.1	1.0 mg/L
Chloride	325.2	1.0 mg/L	COD	410.4	5.0 mg/L
Hardness	130.1	1.0 mg/L			

[1] Method Reporting Limit

No samples were collected from Helper Ditch as was projected in the original sampling plan due to very low stream flow. Also, one sediment sample originally projected to be collected at site UMK050-0007, was not collected as a cost savings measure. Additionally, CBOD-5 was originally projected in the sampling plan to be analyzed on all samples, but due to a laboratory error, it was not analyzed.

Quality Assurance

Contracting laboratories provide analytical reports to IDEM that contain test results and Quality Control information for each batch of samples. Quality assurance and quality control (QA/QC) procedures for this study adhered to the Quality Assurance Project Plan (QAPP) and all field and laboratory data collected for this study met QA/QC requirements for Indiana Surface Water Quality Monitoring Programs of the Assessment Branch (IDEM 1999). See Attachment I for a complete copy of this report. Generally, this plan requires one duplicate and one matrix spike/matrix spike duplicate (MS/MSD) for every ten samples collected in addition to one blank sample for every field trip. This study only required five samples so that one duplicate, one MS/MSD, and one blank adequately satisfied QA/QC requirements. Stream samples and field data are also required to meet Data Quality Assessment Levels cited in the QAPP for Indiana Surface Water Quality Programs.

Results and Discussion

The field and laboratory data sampling results (Tables 4 & 5) below, revealed good water quality in Dausman Ditch. At the time of sampling, the flow in Dausman Ditch was measured at 5.11 cfs at UMK050-0022, the first upstream site and 8.073 cfs at UMK050-0027, the furthest downstream site. The water appeared very clear in Dausman Ditch and minnows were observed at all four sample locations. The laboratory and field data results of the field tile effluent revealed no deleterious levels of pollutants. The discharge from this pipe was very clear and appeared to be mostly groundwater. Minnows were also observed in Dausman Ditch in the pooled discharge area of this tile.

Table 4 Field Data Results

Site	Date	Time	Dissolved Oxygen mg/L	pH SU	Temp. °C	Spec. Con. ? S/cm	Stream Flow cfs
Stream Sample Sites							
UMK050-0022	9/27/00	8:10 AM	8.46	7.94	11.33	760	5.11
UMK050-0022	9/27/00	1:45 PM	12.75	8.25	17.00	749	
UMK050-0007	9/27/00	9:10 AM	9.28	7.99	12.88	758	5.561
UMK050-0007	9/27/00	2:10 PM	11.97	8.25	17.19	751	
UMK050-0025	9/27/00	9:30 AM	9.38	8.03	12.77	742	5.831
UMK050-0025	9/27/00	2:25 PM	12.12	8.23	18.10	743	
UMK050-0027	9/27/00	10:00 AM	9.76	8.04	12.87	744	8.073
UMK050-0027	9/27/00	2:45 PM	11.40	8.26	18.43	735	
Field Tile with Effluent							
UMK050-0023	9/27/00	8:50 AM	8.53	7.74	15.85	750	0.167
UMK050-0023	9/27/00	2:00 PM	7.82	7.65	16.65	850	

Table 5 Laboratory Sample Results

PARAMETER	Stream Sample Sites				Field Tile with Effluent
	UMK050-0022	UMK050-0007	UMK050-0025	UMK050-0027	UMK050-0023
Alkalinity - mg/L	250	250	240	250	170
Chloride - mg/L	22 (J)*	25 (J)	24 (J)	25 (J)	75 (J)
Chemical Oxygen Demand - mg/L	16	24	22	18	7.6
Hardness (as CaCO3) Calculated - mg/L	460	480	500	430	290
Nitrogen, Ammonia - mg/L	0.15	0.15	< 0.10	0.11	0.25
Nitrogen, Nitrate+Nitrite - mg/L	5.2 (B)	5.3 (B)	5.2 (B)	4.9 (B)	11 (B)
Nitrogen, Total Kjeldahl - mg/L	N/A	1.2 (BJ)	N/A	N/A	N/A
Phosphorus, Total - mg/L	0.059	0.06	0.066	0.06	0.25
Solids, Total Dissolved - mg/L	500	510	510	500	500
Solids, Total Suspended - mg/L	5	5	7	7	< 4
Solids, Total - mg/L	590	620	590	610	590
Sulfate - mg/L	110	110	100	100	65
Total Organic Carbon - mg/L	6.9	6.6	6.5	6.3	2.7

*NOTE: The data quality flags indicated in () are defined in Attachment I
N/A – data not available

Quality Assurance/Quality Control

Data Quality
IDEM chemists from the Toxicology and Chemistry Section, Assessment Branch, OWQ reviewed lab data reports from samples for the Dausman Ditch Source Identification Water Quality Study for compliance to the Surface Water QAPP requirements for Quality Assurance / Quality Control (QA/QC).

Precision
The in-lab quality assurance for data in this report for analytical precision was based on laboratory duplicates, matrix spike duplicates, and Relative Percent Difference (RPD). All the parameters in this data set were within control limits (+/- 20%).

Accuracy
The in-lab analytical accuracy was based on matrix spikes, matrix spike duplicates, quality control samples, and on-going performance recovery samples. The recovery values for Chloride were below acceptable limits and the results were estimated.

Holding Times
Laboratory holding times for all but two of the samples were within acceptable limits per Table 2 in 40 CFR part 136. Two Nitrogen and Nitrate-Nitrite samples exceeded acceptable holding times and the results were estimated.

Blanks
Significant results, greater than the MRL, for a parameter indicates contamination from the field sampling process (field blanks) or laboratory sample preparation (field blanks or lab blanks). Blank contamination of Total Kjeldahl Nitrogen (TKN) was noted in all samples of this data set. Affected results were flagged either as estimated or rejected depending upon the level of contamination.

Of the 78 results gathered for this project, 6.4% (5) were rejected and 10.3% (8) were qualified as estimated. As per the Surface Water QAPP, the non-rejected data was qualified at Data Quality Assessment Level 3 and acceptable for use in IDEM decision making processes. Rejected data was not used for assessment purposes. Details of the Quality Assurance Analysis are included in Attachment I.

Summary and Conclusions

Eighteen of the original 26 parameters tested in the probabilistic study were sampled again in the 2000 Dausman Ditch source identification study. Six of these 18 parameters have numerical water quality standards. The study of Dausman Ditch revealed no water quality standard violations for general chemistry and nutrient parameters from the sites sampled on September 27, 2002 including Mikel Mobile Estates semi-public wastewater treatment plant. No source was identified to have caused the DELTs in the fish specimens that were collected.

References

Hoggatt RE. 1975. *Drainage Area of Indiana Streams.* In cooperation with the United States Geological Survey (USGS) and the Indiana Department of Natural Resources (IDNR). U.S. Government Printing Office.

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Simon TP. 1997. Development of Index of Biotic Integrity expectations for the ecoregions of Indiana. III. Northern Indiana Till Plain. U.S. Environmental Protection Agency, Region V, Water Division, Watershed and Non-Point Source Branch, Chicago, IL. EPA 905/9-96/002.

Attachment I

Quality Assurance of Analytical Data for Water Samples from the Source Identification

Sampling Dates: 9/27/2000

Environmental Toxicology and Chemistry Section, AB/OWM
QA/QC Review Report: IDEM/100/29/477/002/2001

IDEM Sample Set # 00WQW226

Sample Identification and Sampling Locations

	SampleID	TA Sample No.	Sample Type	Date Sampled	Site Name	River/Stream/Creek/Lake	Sample Location	County
1	AA02259	276510	Normal	9/27/00	UMK050-0022	Dausman Ditch	SR 19	Kosciusko
2	AA02260	276511	Field Blank	9/27/00	BLANK		Dummy Site for Blanks	
3	AA02261	276512	MS/MSD	9/27/00	UMK050-0023	Jacob B. Miller Field Tile	combined with the Mikel	Kosciusko
4	AA02262	276513	Normal	9/27/00	UMK050-0008	Dausman Ditch	D/S of SR 19	Kosciusko
5	AA02263	276515	Normal	9/27/00	UMK050-0025	Dausman Ditch	CR 900 West	Kosciusko
6	AA02265	276516	Normal	9/27/00	UMK050-0027	Dausman Ditch	CR 1100 West	Marshall
7	AA02266	276517	Duplicate	9/27/00	UMK050-0027	Dausman Ditch	CR 1100 West	Marshall

Testing Laboratory:

Test America Incorporated (TA)
Indianapolis Division
6964 Hillsdale Ct.
Indianapolis, IN 46250

Contact Person:
[] Ken Busch
[] Telephone: 317-842-4261

Sample Receipt Date to TA: 9/28/2000
TA Job Number (s): 00.05208

Date Report Prepared: 12/14/2000
Date Report Received: 1/3/2001

Chain of Custody: A check mark [Y] below indicates information about each item is complete and acceptable.

[] Sampler Signature Y
[] Custodian Signature Y
[] Collection Time(s) Y
[] Collection Date(s) Y
[] Receiving Time(s) Y
[] Receiving Date(s) Y
[] Preservatives Y
[] Containers Y

General Chemistries

Test Methods and Reporting Limits (mg/L unless otherwise noted)

PARAMETERS:	TEST METHODS	IDEM REPORTING LIMITS	TA REPORTING LIMITS
Alkalinity	310.1	10	10
Chloride	325.2	1.0	1.0
Chemical Oxygen Demand (COD)??	410.4	3.0	5.0
Hardness (as $CaCO_3$)	130.1	1.0	1.0
Nitrogen, Ammonia	350.1	0.01	0.10
Nitrogen, Total Kjeldahl (TKN)????	351.2	0.05	0.10
Nitrogen, Nitrate+Nitrite	353.2	0.01	0.01
Phosphorus, Total	365.2	0.01	0.03
Solids, Dissolved (TDS)	160.1	10	10
Solids, Suspended (TSS)?????????	160.2	4.0	4.0
Solids, Total (TS)	160.3	1.0	7.0
Sulfate	375.2	1.0	5.0
Total Organic Carbon (TOC)	415.1	1.0	1.0

Quality Control (QC) Checks and Compliance: A check mark [Y] below indicates information about each QC criterion is complete and acceptable.

[] Summary Data Package Y
[] Prep Dates Y
[] Analysis Dates Y
[] Holding Times Y
[] Approved Analytical Methods Y
[] Approved Detection Limits Y
[] Method, Field, and Trip Blanks (< CRQL) Y
[] Field and Method Duplicates (RPD $\leq$ 20%) Y
[] Matrix Spikes and Matrix Spike Duplicates ($\pm$ 20%; RPD $\leq$ 20%) Y
[] Instrument Calibrations (Correlation Coefficient $\geq$ 0.995) Y
[] Laboratory Control Standards ($\pm$ 20%) Y
[] Initial and Continuing Calibration Verification Standards ($\pm$ 10%) Y

Comments: See Below

IDEM ID	Parameter(s)	Data Flag(s)	Action
AA02259, AA02260, AA02261, AA02262, AA02263, AA02265, AA02266	Nitrogen, Nitrate+Nitrite (1)	B A	**Accepted**
AA02259, AA02261, AA02263, AA02265, AA02266	Nitrogen, Total Kjeldahl (TKN) (2)	B R	**Rejected**
AA02262	Nitrogen, Total Kjeldahl (TKN) (3)	B J	**Estimated**
AA02266, AA02260	Nitrogen, Nitrate+Nitrite (4)	H J	**Estimated**
AA02259, AA02260, AA02261, AA02262, AA02263, AA02265, AA02266	Chloride (5)	J	**Estimated**

(1) This parameter was found in lab blank at .012 mg/L. All of the samples that are below the reporting limit and above .12 mg/L will be accepted.

(2) This parameter was found in field blank at .24 mg/L. All of the samples that are above the reporting limit and below 1.2 mg/L will be rejected.

(3) This parameter was found in field blank at .24 mg/L. All of the samples that between 1.2 mg/L and 2.4 mg/L will be estimated

(4) The analysis for this parameter was performed out of the holding time of 28 days. The analysis was preformed before the 42 day and will be estimated.

(5) The MS/MSD recovery values were below the acceptable limits. The matrix interference may be suppressing the analyte recovery. The concentration values for the sample may be biased low due to the suspected matrix interference. The concentration values for the sample may be biased low due to the suspected matrix interference. Therefore this set will be considered estimated.

Data Qualifiers and Flags

R: Rejected

J: Estimated.

Q: One or more of the QC checks or criteria was out of control.

H: The analysis for this parameter was performed out of the holding time. The results will be estimated or rejected on the basis listed below:

1) If the analysis was performed between the holding time and 1½ times the holding time the result will be estimated.
2) If the analysis was performed outside the 1½ times the holding time window the result will be rejected.

D: The Relative Present Difference (RPD) for this parameter was above the acceptable control limits. The parameter will be considered estimated or rejected on the basis listed below:

1) If the RPD is between the established control limits and two times the established control limits then the sample will be estimated.
2) If the RPD is twice the established control limits then the sample will be rejected.

B: This parameter was found in field or lab blank. Whether the result is accepted, estimated, or rejected will be based upon the level of contamination listed below.

1) If the result of the sample is greater than the reporting limit but less than five times the blank contamination the result will be rejected.
2) If the result of the sample is between five and ten times the blank contamination the result will be estimated
3) If the result of the sample is less than the reporting limit or greater than ten times the blank contamination the result will be accepted.

U: The result of the parameter is above the Method Detection Limit (MDL) but below the reporting limit and will be estimated.

Data Quality Assessments (DQAs): A check mark (Y) below indicates the DQA Level to which the analytical data qualifies.

Level 1 [] **Screening data:** The results are usually generated onsite and have no QC checks. Analytical results, which have no QC checks or no precision or accuracy information or no detection limit calculations, but just numbers, are included in this category. Primarily, onsite data are used for presurveys and for preliminary rapid assessment.

Level 2 [] **Field analysis data:** Data is recorded in the field or laboratory on calibrated or standardized equipment. Field duplicates are measured on a regular periodic basis. Calculations may be done in the field or later at the office. Analytical results, which have limited QC checks, are included in this category. Detection limits and ranges have been set for each analysis. The QC checks information for field or laboratory results is useable for estimating precision, accuracy, and completeness for the project. Data from this category is used independently for rapid assessment and preliminary decisions.

Level 3 [Y] **Laboratory analytical data:** Analytical results include QC check samples for each batch of samples from which precision, accuracy, and completeness can be determined. Detection limits have been determined using 40 CFR Part 136 Appendix B, Revision 1.11. Raw data, chromatograms, spectrograms, and bench sheets are not included as part of the analytical report, but are maintained by the Contract Laboratory for easy retrieval and review. Data can be elevated from level 3 to level 4 by the inclusion of this information in the report. In addition, level 4 QC data must be reported using CLP forms or CLP format.

Data falling under this category is considered as complete and is used for regulatory decisions.

Level 4 [] **Enforcement data:** Analytical results mostly meet the USEPA required Contract Laboratory Program (CLP) data analysis, contract required quantification limits (CRQL), and validation procedures. QC data is reported on CLP forms or CLP format. Raw data, chromatograms, spectrograms, and bench sheets are included as part of the analytical report. Additionally, all reporting information required in the IDEM/BAA and in the Surface Water QAPP Table 11-1 are included. Data is legally quantitative in value, and is used for regulatory decisions.

Compliance Statement:

The laboratory results for a Data package from **7 water** samples received from Test America (TA) were reviewed for compliance with IDEM BAA 97-44, dated 4/18/97 and OWM QAPP (Rev. 2, June 1999) for Indiana Surface Water Programs.

Summary and Conclusions:

1. Data Quality Assessment Level: 3
2. Level of Completeness: 100%

The data for the **7 water** samples from data package **00WQW226** has been assigned to Data Quality Assessment (DQA) Level 3 of QAPP for Indiana Surface Water Programs. The analytical results for **7 water** samples appear acceptable and could be used for OWM decision making.

Reviewed by:
Signature: Christopher Haynes Title: Chemist Date: January 3, 2001
Signed Copy on File
Approved by:
Signature: Dr. Syed GhiasUddin Title: QA/Coordinator Date: _____
Signed Copy on File

Distribution List:
Art Garceau
Larry McFall
Carl Christensen
Christopher Haynes
Dr. GhiasUddin
(File copy)

Attachment II

Indiana Department of Environmental Management
Office of Water Quality/ Assessment Branch/ Biological Studies Section
Fish Community Assessments

Site Information

SubBasin: Kankakee | 14 digit HUC: 07120001050110 | LSite: UMK050-0007
Site: Dassman Ditch | Location: D/S of SR 19 | County: Kosciusko
Latitude: 41 22 26.849 | Longitude: -86 0 27.267 | IASNatRegion: 4 | Topo: B-13 | Segment: 13
Ecoregion: S. Michican/N. Indiana Drift Plains | DrainageArea (sq.miles): 22 | Gradient (ft/mile): 2.4

Sample Information

SampleNumber: DA13660 | EventID: 99044 | SampleMediumCollected: Water + FishComm
SampleDate: 7/6/99 4:00:0 | SurveyCrewChief: ARB | SampleTime: 4:00:00 PM | HydroLabNumber: BS3
WaterFlowType: | WaterAppearance: | SkyConditions: Clear | AirTemperature: 76-85
WindDirection: West (270 degrees) | WindStrength: Light
DissolvedO2 (mg/l): 8.87 | pH: 8.03 | WaterTemp (°C): 25.5 | SpecificConductivity (µS/cm): 715 | Turbidity (NTU): 2.3
SpecialNotes:

ElectrofishingEquipment: Backpack | Voltage: 200 | Avg.StreamWidth (m): 4.8 | DistanceFished (m): 75
SecondsFished: 667 | WaterDepthAvg (m): 0.3 | WaterDepthMax (m): 0.5 | TimeAtSite: 2:15
BridgeInReach: ☐ | ReachRepresentative: ☑ | WhyReachNotRepresentative:
SpecialComments:

Habitat Information

TotalScore (max100): 42 | SubstrateScore (max20): 11 | InstreamsCoverScore (max20): 11 | ChannelMorphologyScore (max20): 5
RiparianZoneBankErosionScore (max10): 7 | Pool/GlideQualityScore (max12): 4 | Riffle/RunScoreQuality (max8): 0
GradientScore(max10): 4 | %Pool 0 | %Riffle: 0 | %Run: 100 | %Glide: 0 | CanopyCoverPctOpen:
SubjectiveRating: 2 | AestheticRating: 2 | NOTES:

Fish Community Index of Biotic Integrity (IBI) Information

	Actual Observation	Metric Score		Actual Observation	Metric Score
SpeciesCount:	13	5	SensitiveSpeciesCount:	4	5
Darter/Madtom/SculpinSpeciesCount:	5		%TolerantIndividuals:	32.3	5
DarterSpeciesCount:	3	3	%OmnivoreIndividuals:	7.3	5
%LargeRiverIndividuals:			%InsectivoreIndividuals:	67.7	5
%HeadwaterIndividuals:	18.5		%PioneerIndividuals:	36.3	
SunfishSpeciesCount:	0	1	%CarnivoreIndividuals:	0.0	1
CentrarchidaeSpeciesCount:			Total #of Individuals(CPUE):	124	3
MinnowSpeciesCount:	8		CPUElessGizzardShads:		
SuckerSpeciesCount:	0	1	%SimpleLithophilicInd.:	43.5	3
RoundBodySuckerSpeciesCount:			%Ind.withDeformities, ErodedFins,Lesions,Tumors:	4.8	1
SalmonidaeSpeciesCount:					

Metrics are dependent on Ecoregion and Drainage Area.
Metrics can score a 1, 3, or 5 depending on calibration.

TotalIBIScore (min 6=nofish): 38 max=60

Indiana Department of Environmental Management

Office of Water Quality/ Assessment Branch/ Biological Studies Section

Fish Community Assessments

SampleNumber: DA13660 **EventID:** 99044 **LSite:** UMK050-0007 **County:** Kosciusko

StreamName: Dausman Ditch **LocationDescription:** D/S of SR 19

Common Name	Individual Fish Count	Deformities	Eroded Fins	Lesions	Tumors	Multiple Anomalies
Banded Darter	1	0	0	0	0	0
Blacknose Dace	18	1	0	0	0	0
Blackside Darter	1	0	0	0	0	0
Bluntnose Minnow	9	0	0	0	0	0
Creek Chub	13	1	0	0	2	0
Hornyhead Chub	3	0	0	0	0	0
Johnny Darter	18	0	0	0	0	0
Mottled Sculpin	5	0	0	0	0	0
Rosyface Shiner	4	0	0	0	0	0
Sand Shiner	15	0	0	0	0	0
Silverjaw Minnow	5	0	0	0	0	0
Striped Shiner	31	0	0	1	0	0
Tadpole Madtom	1	0	0	1	0	0